## REMARKS

Claims 1-23 are pending in the application. Claims 1-23 have been rejected.

Applicants provide a computer method and system for analyzing spoken utterances directed to speech-enabled applications. According to the computer method and system, a grammatic specification is defined based on a domain model that is suitable for processing the spoken utterances. The domain models include application independent foundation domain models and application domain models. The foundation domain model consists of common classes that can be shared and extended by the speech-enabled applications. Individual speech-enabled applications can extend the foundation domain model to create an application domain model by adding their own elements to the base classes, or defining new subclasses of these classes and new sentence forms to work with them. The domain model's base classes have built-in meaning, in that the system has a model about what kinds of entities populate the different built-in classes and what kinds of operations can be performed upon them.

Specifically, the grammatic specification is defined by modifying the conventional grammatic specification (e.g., the Bachus Naur Form) to include domain model information. An example of such a modified grammatic specification is shown in the specification on page 15, lines 1-3. In this example, the value of an attribute is defined by a range of valid values (attribute.range). In this way, the "attribute" of the grammatic specification has meaning.

Next, a recognition message, based on one of the spoken utterances recognized by a speech engine, is processed to produce an initial semantic representation of the recognized spoken utterance based on the grammatic specification and the domain model. An initial semantic representation is shown in frame structure form in the specification on page 16, lines 10-21. This initial semantic representation is then converted into a series of propositions, which are primarily attribute-object-value triples.

Claims 1-5, 7-12, 14-19 and 21-23 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Loatman *et al.* (U.S. Pat. No. 4,914,950) ("Loatman").

Loatman teach a natural language understanding (NLU) system referred to as PAKTUS (PRC adaptive knowledge-based text understanding system). This system is a hybrid system

integrating syntactic and semantic NLU methods. The PAKTUS architecture is illustrated in Figure 1 of Loatman.

As shown in Figure 1 of Loatman, an electronic stream of text 20 is input to a preprocessor 30 that decomposes the stream of characters into individual words, sentences and messages (40). "Words" are analyzed by referring to a lexicon 60 containing syntactic and semantic information about the "words". If PAKTUS does not recognize the words, it analyzes them morphologically (50).

If PAKTUS still fails to recognize the words, it determines the words' meaning from the current context, in the learning module 70. The learning module 70 supplies a guess and later verifies that guess by interacting with a dictionary officer 78 who has appropriate knowledge and understanding of the system lexicon 60 (col. 6, lines 29-34).

Next, module 80 parses the sentences syntactically according to a Augmented Transition Network (ATN) grammar specification 90 by identifying the subject, main verb, direct and indirect objects, etc. for each sentence and forms a syntactic structure 100 (col. 6, lines 35-42). The syntactic structure 100 is then converted into "case frames" 120 that are language-independent semantic structures representing a proposition about the world. The "case frames" are processed by a discourse analysis component 130 which applies domain knowledge templates 135 to integrate all the information of the message into conceptual structures 140 representing its meaning (col. 6, lines 57-62). These conceptual structures 140 are then passed to an application which acts according to the goals represented by the conceptual structures 140.

Applicants define a grammatic specification based on the domain model to build meaning into the grammatic specification. In contrast, Loatman teaches parsing a sentence syntactically according to the ATN grammar specification. Such a parse simply "identifies the subject, main verb, direct and indirect objects (if any), prepositional phrases, relative clauses, adverbials, etc. for each sentence" (column 6, lines 35-41). The ATN grammar consists of several networks, each of which is a directed graph with labeled states and arcs (column 25, lines 67-68). The ATN grammar, however, does not incorporate domain information. In fact, "Domain-specific knowledge" is derived from the "case frames" after the syntactic structure from the syntactic parse is converted into "case frames." Since Loatman does not teach, suggest or otherwise make obvious "defining a grammatic specification . . . based on a domain model . . .

, the domain model providing the grammatic specification with built-in meaning" as claimed in now amended Claim 1, Applicants respectfully request that the rejection of this claim be withdrawn.

Independent Claims 8, 15, 22 and 23 have been amended to include similar limitations as base Claim 1 and are allowable for the same reasons as Claim 1. Therefore, Applicants respectfully request that the rejection of Claims 8, 15, 22 and 23 be withdrawn.

Since Claims 2-5 and 7 depend from now amended base Claim 1, Claims 9-12 and 14 depend from now amended base Claim 8, and 16-19 and 21 depend from now amended base Claim 15, they are allowable for the same reasons. Therefore, Applicants respectfully request that the rejection of Claims 2-5, 7, 9-12, 14, 16-19 and 21 be withdrawn.

Claims 6, 13 and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Loatman in view of Phillips *et al.* (U.S. Pat. No. 6,519,562) ("Phillips").

As explained above, Loatman does not disclose every limitation of now amended base Claims 1, 8, and 15. Phillips does not add to Loatman "defining a grammatic specification . . . based on a domain model . . . , the domain model providing the grammatic specification with built-in meaning" as claimed in now amended base Claims 1, 8 and 15. Since Claims 6, 13 and 20 depend from now amended base Claims 1, 8 and 15, respectively, they are allowable for the same reasons. Therefore, Applicants respectfully request that the rejection of Claims 6, 13 and 20 be withdrawn.

## CONCLUSION

In view of the above amendments and remarks, it is believed that all pending claims (Claims 1-23) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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